Notes:

The three subsequent worksheets provide a calculator tool for:

1. Back-calculating the water Se concentrations in lotic and lentic waters that are predicted to result in the fish egg Se cr
2. Back-calculating the fish egg Se concentrations in lotic and lentic waters that are predicted to result from a water Se c
3. Back-calculating the sulphate-dependent water Se concentrations that are predicted to result in the fish egg Se criteri

Each worksheet provides predictions based on the 75th, 65th, 50th, and 90th quantiles:

- See the main body of the manuscript for a discussion on model quantiles
- The 75th quantile was recommended for a fish egg Se guideline of 20 µg/g dw, while the 65th quantile is provided as
  - Model quantile selection should consider the magnitude of the fish egg Se guideline of interest to ensure relevance r
- The 50th quantile is provide as a central tendency estimate for each partitioning step in the food web
- The 90th quantile is provide as an upper bound estimate for each partitioning step in the food web.
  - Use of this quantile compounds conservatism at each step in the food web and may result in water Se concentration

Calculate the predicted water egg Se concentration from a fish egg Se concentration

Enter the fish egg Se concentration of interest in the dark blue-highlighted cell; the water Se concent concentration are highlighted in orange for each water type (lotic, lentic) and quantile (75th, 64th, 50t

Fish egg Se (mg/kg dw): 29.0

Lotic										
	75th Quantiles				65th Quantiles				50th Q	
Component	Slope	Intercept	Predicted Se (mg/kg dw or µg/L)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw or µg/L)	TTF or EF	Slope	Intercept
Invertebrate	0.666	1.470	9.9	2.1	0.758	1.100	12.2	1.8	0.873	0.643
Particulate	0.893	0.914	4.7	722	0.906	0.764	6.8	321	0.857	0.477
Water	0.552	0.511	6.5	--	0.560	0.206	21.2	--	0.544	-0.087

Lentic										
	75th Quantiles				65th Quantiles				50th Q	
Component	Slope	Intercept	Predicted Se (mg/kg dw or µg/L)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw or µg/L)	TTF or EF	Slope	Intercept
Invertebrate	0.666	1.470	9.9	2.1	0.758	1.100	12.2	1.8	0.873	0.643
Particulate	0.893	0.914	4.7	1546	0.906	0.764	6.8	1377	0.857	0.477
Water	0.805	0.652	3.0	--	0.779	0.673	4.9	--	0.721	0.593

for lotic and lentic sites and based

rations predicted to result in that fish egg Se
h, and 90th)

uantiles		90th Quantiles			
Predicted Se (mg/kg dw or µg/L)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw or µg/L)	TTF or EF
14.8	1.1	0.927	1.188	7.0	3.4
13.3	97	0.849	1.331	2.1	2483
136.6	--	0.645	0.845	0.8	--

uantiles		90th Quantiles			
Predicted Se (mg/kg dw or µg/L)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw or µg/L)	TTF or EF
14.8	1.1	0.927	1.188	7.0	3.4
13.3	834	0.849	1.331	2.1	4524
15.9	--	0.796	1.351	0.5	--

Calculate the predicted fish egg Se concentration from a water Se concentration for loti

Enter the water Se concentration of interest in the dark blue-highlighted cell; the fish egg Se concentrati Se concentration are highlighted in orange for each water type (lotic, lentic) and quantile (75th, 64th, 50t

Water Se (µg/L): 6.5

Lotic											
	75th Quantiles				65th Quantiles				50th Quantiles		
Component	Slope	Intercept	Predicted Se (mg/kg dw)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw)
Fish egg	0.666	1.466	19.9	2.0	0.758	1.100	12.7	1.9	0.873	0.643	5.8
Invertebrate	0.893	0.914	9.9	2.1	0.906	0.764	6.7	1.9	0.857	0.477	3.6
Particulate	0.552	0.511	4.7	721	0.560	0.206	3.5	539	0.544	-0.087	2.5

Lentic											
	75th Quantiles				65th Quantiles				50th Quantiles		
Component	Slope	Intercept	Predicted Se (mg/kg dw)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw)	TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw)
Fish egg	0.666	1.466	28.7	1.7	0.758	1.100	23.2	1.6	0.873	0.643	12.3
Invertebrate	0.893	0.914	17.1	2.0	0.906	0.764	14.8	1.8	0.857	0.477	8.5
Particulate	0.805	0.652	8.7	1331	0.779	0.673	8.4	1296	0.721	0.593	7.0

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ons predicted to result in that water
ı, and 90th)

	90th Quantiles			
TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw)	TTF or EF
1.6	0.927	1.188	56.6	2.6
1.4	0.849	1.331	21.6	2.8
390	0.645	0.845	7.8	1197

	90th Quantiles			
TTF or EF	Slope	Intercept	Predicted Se (mg/kg dw)	TTF or EF
1.4	0.927	1.188	105.4	2.5
1.2	0.849	1.331	42.2	2.5
1072	0.796	1.351	17.1	2637

Calculate the sulphate-dependent water Se screening guideline for selenate-dominated lotic waters and based on different quantiles

Water SO_4 (mg/L):	100
Fish egg Se (mg/kg dw):	20

Quantile:	Sulphate-dependent Se Guideline (µg/L)
75th	21.1
65th	27.4
50th	37.2
90th	8.5